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AUTHOR Martin, Peter
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ABSTRACT

In recent years there has been an increased awareness about the growing number of the oldest old. A structural model for the study of the oldest old was introduced by Lehr (1987) and was built on experience with data from the Bonn Longitudinal Study of Aging. In the Lehr model, genetic, environmental, and ecological factors affect longevity directly and indirectly through individual characteristics, such as personality and intelligence. Aspects of nutrition, demographic characteristics, and health status additionally influence longevity in this model. Because the test of a comprehensive model such as the one proposed by Lehr is very complex, it may be more reasonable to first test submodels of longevity before integrating a large number of correlates to longevity. A genetic model relating family longevity to demographic and individual characteristics could be tested as a first step, as could an ecological model emphasizing environmental aspects or a health model highlighting nutritional and health components. Adaptational models have also been proposed, suggesting that aspects of life experiences as they relate to the life-span, appraisal processes of such events, and coping mechanisms might also be added to models on the oldest old. Interdisciplinary research is needed to examine personal characteristics, ecological factors, nutritional aspects, health, and stress variables as they influence the longevity of individuals. (Author/NB)

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Conceptual Models to Study the Adaptation of the Oldest Old

(Subject index: 8.22)

Peter Martin

Child and Family Development

University of Georgia

Athens, Georgia 30602

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Abstract

In recent years there has been an increased awareness about the growing number of the oldest old. Few conceptual models have been developed to study the adaptation of this population and what determines their survival. This paper outlines a number of conceptual models for the study of the oldest old. The basis of these models comes from a structural model introduced by Lehr (1987) which was built on the experience with data from the Bonn Longitudinal Study of Aging. It is proposed to first test a number of submodels of adaptation, i.e., a genetic model, an ecological model and a health model of adaptation. Further attempts to incorporate components from other adaptational models are also discussed.

Conceptual Models to Study the Adaptation of the Oldest Old

There is something special and vibrant about individuals who pass the age of 80 full of life and in reasonable health and functioning (Rose & Bell, 1971; Palmore, 1974; Lehr, 1987). About one out of every 10,000 persons achieves the elite status of centenarian and about 38% of this special population maintains some level of semi-independence by living in their own homes and with their community (Wekstein, 1986).

Researchers have just recently given attention to this growing number of the oldest, yet conceptual models to study correlates of adaptation into old age are still lacking. The purpose of this paper is to outline conceptual models for the study of the oldest old and to suggest future studies on this special population.

The Bonn Model of Longevity

Lehr (1987) and Lehr and Schmitz-Scherzer (1976) introduced a structural model of longevity which was built on their experience with the data from the Bonn Longitudinal Study of Aging in West Germany (Figure 1). In this model, genetic, environmental and ecological factors affect longevity directly and indirectly through individual characteristics, such as personality and intelligence. Aspects of nutrition, demographic characteristics and health status additionally influence longevity in this model.

Lehr (1987) gives evidence for partial relationships in this model: Family factors (Wyshak, 1978; Fox, Bunsen & Kinlen, 1979), as well as demographic characteristics (Terman & Oden, 1959; Rose and Bell, 1971), overweight (Dublin & Marks, 1951), health (Beller & Palmore, 1974) and geographic characteristics have been established as predictors for longevity (Franke, Bracharz, & Gall, 1973). Nutritional factors along with levels of activity (Matsuzaki, 1978) have also been found to be important predictors. While these variables have demonstrated an influence on longevity, they have all been studied in an isolated fashion. What is clearly needed is to study the relative influence of these psychosocial characteristics in a comprehensive model.

Submodels of Longevity

The test of a comprehensive model such as the one proposed by Lehr (1987) is, however, a very complex task. It is therefore suggested to first test submodels of longevity before integrating a large number of correlates to longevity. Figure 2 outlines a number of components which could be tested as a first step in the analysis of longevity: A genetic model relating family longevity to demographic and individual characteristics, an ecological model which emphasizes environmental aspects, and health model highlighting nutritional and health components.

Adaptational Models

In recent years, a number of adaptational models have been suggested as they relate to developmental changes (Hultsch & PLemons, 1979; Filipp, 1981; McCubbin & Figley, 1983; Whitbourne, 1985) which are relevant to studying the adaptation of the oldest old. It is therefore suggested to include aspects of life experiences as they relate to the life-span, appraisal processes of such events and coping mechanisms to models on the oldest old. Figure 3 summarizes a conceptual model which closely relates current life events to the adaptation of the oldest old. The focus in these adaptational models is on the experience of life events and the way individuals cope with such events. Individual characteristics, ecological and demographic factors as well as health issues are seen as mediating factors. This specific model of adaptation could easily be tested against, or components could be included in the more general model of adaptation of the oldest old.

Conclusion

The study of the oldest old and their survival enables researchers to examine the richness of the human life-span. At this point, only anecdotes exist about "personal recipes" of survival. Future research on the oldest old needs to focus on interdisciplinary research which looks at personal characteristics, ecological factors, nutritional aspects and health, as well as stress components which all in part and jointly influence the longevity of individuals.

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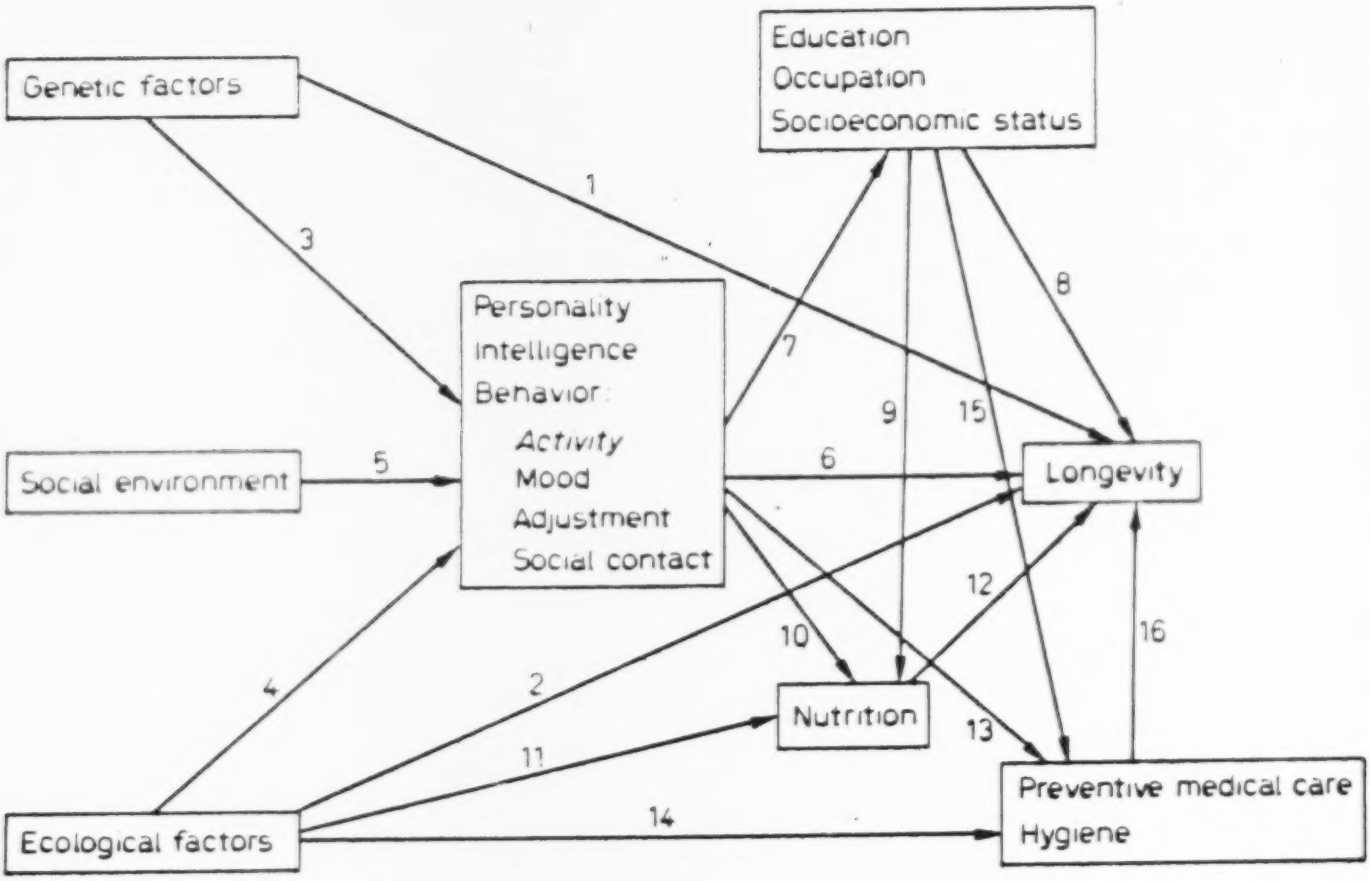
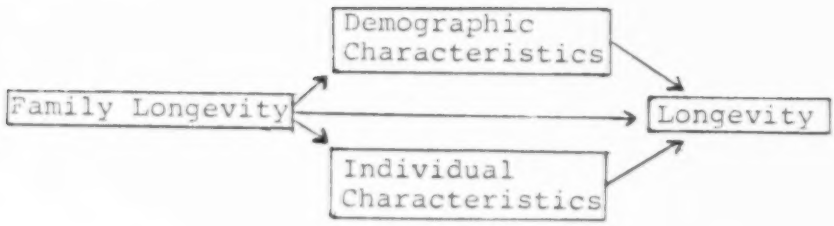
Figure 1
Determinants of Longevity



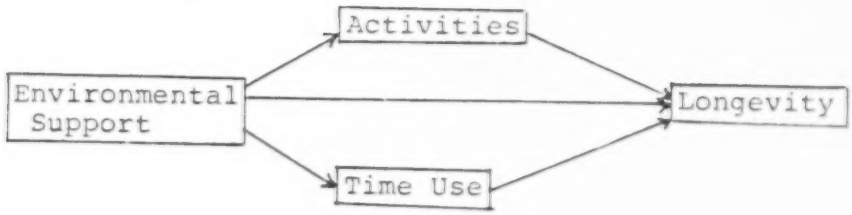
In: Lehr, U., & Schmitz-Scherzer, R. (1976). Survivors and nonsurvivors - Two fundamental patterns of Aging. In. H. Thomae (Ed.), Patterns of aging (pp. 137-146). Basel: Karger.

Figure 2
Submodels of Longevity

A. Genetic Model



B. Ecological Model



C. Health Model

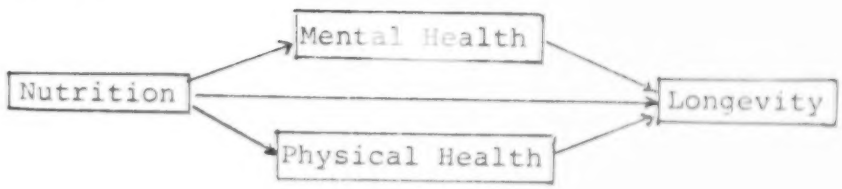
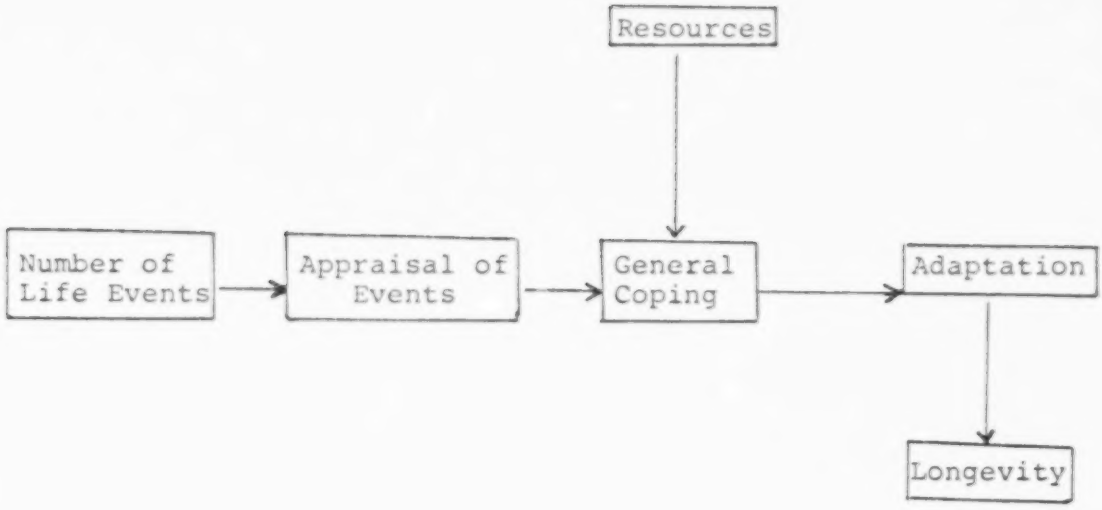


Figure 3
Life Event Model of Adaptation*



*Modified after Whitbourne, 1985.